Wisconsin's Model Academic Standards for Agricultural Education

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This publication is available from

Publication Sales
Wisconsin Department of Public Instruction
Drawer 179
Milwaukee WI 53293-0179
(800) 243-8782

Bulletin No. 9003

ISBN 1-57337-065-7

Printed on recycled paper.

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The mission of agricultural education is to prepare and support individuals for careers, build awareness, and develop leadership for the food, fiber, and natural resource systems.

The mission of FFA is to make a positive difference in the lives of students by developing their potential for premier leadership, personal growth, and career success through agricultural education.

Please note that the page numbers on the CD-ROM version differ from the page numbers found in the hard copy of standards books. In order to make the CD-ROM version more user friendly, we have removed most of the formatting (i.e., blank pages, columns, sizes and types of fonts, etc.).

A Letter from the State Superintendent

To the Citizens of Wisconsin:

Wisconsin has long been a model for other states in terms of education quality. However, the world is rapidly becoming a more complex place. As a result, we must expect greater academic achievement from our children today if they are to be adequately prepared for the challenges of tomorrow.

The only way to ensure that Wisconsin's students have the skills and abilities to be successful in this rapidly changing technological world is to set clear, high academic standards that describe precisely what today's students must learn and be able to do in order to be successful in their adult lives. This is why we focused our efforts over the past two years creating model academic standards in all subject areas. While Wisconsin's Model Academic Standards do demand more of our students, we are confident that our students are equal to the task.

These model academic standards represent the work of a task force made up of people from diverse backgrounds. Educators, parents, and business people produced the academic content and performance standards in this document. Drafts were subjected to public engagement in which many additional people offered input.

It must be stressed that these standards are not intended to limit local districts. Instead they are a model to be met or exceeded. Our hope is that the standards will shape teaching and learning in Wisconsin's more than 2000 school buildings. The standards will define the criteria by which one can judge the quality of education programs. While many schools already have clearly defined high academic standards, many others may wish to review and perhaps change their learning goals and teaching methods.

Standards logically provide the foundation for testing; and, testing results are a critical barometer of both student and teacher success. Local tests that are well-aligned to the standards are a clear indicator of students' preparation for future education, civic responsibility, and meaningful employment.

In closing, I want to commend the members of the task force who gave freely of their time to produce the standards in this document. Finally, the citizens of Wisconsin must be thanked for devoting their time and effort to the development of the final draft of Wisconsin's Model Academic Standards.

John T. Benson
State Superintendent

Acknowledgments

Wisconsin's Model Academic Standards for Agricultural Education would not have been possible without the efforts of many people. Members of the task force freely gave their time and expertise in developing the academic standards. In addition, their employing agencies generously granted them time to work on this initiative. The task force members are

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Special thanks to Nancy M. Johnson of American Family Insurance who conducted a focus group made up of Al Beaver, University of Wisconsin Extension; Curt Hanson, Midstate Power and Equipment; Edwin Joseph, UW Graduate Student, Island Nation of Trinidad; Rick Klemme, Center for Integrated Agricultural Systems; Mark Liedl, Wisconsin Department of Agriculture; Anna Maenner, Wisconsin Agribusiness Council; Richard Renk, Renk International; Joseph Sensenbrenner, former mayor of Madison; Tom Thieding, Wisconsin Farm Bureau Federation; Robert Walton, ABS Global Inc.; and Mike Wehler, food producer. They are the visionaries who identified the framework for the agricultural education standards.

Also, thanks to Greg Doyle, Kathy Addie, Donna Collingwood, Amy French, Victoria Horn, Beverly Kniess, Sandi Ness, Edy Paske, and Tammy Wylesky for their valuable contributions to this publication. Their talents and assistance are sincerely appreciated.

Introduction

Defining the Academic Standards

What are academic standards? Academic standards specify what students should know and be able to do, what they might be asked to do to give evidence of standards, and how well they must perform. They include content, performance, and proficiency standards.

— Content standards refer to *what* students should know and be able to do.
— Performance standards tell *how* students will show that they are meeting a standard.
— Proficiency standards indicate *how well* students must perform.

Why are academic standards necessary? Standards serve as rigorous goals for teaching and learning. Setting high standards enables students, parents, educators, and citizens to know what students should have learned at a given point in time. The absence of standards has consequences similar to lack of goals in any pursuit. Without clear goals, students may be unmotivated and confused.

Contemporary society is placing immense academic demands on students. Clear statements about what students must know and be able to do are essential to ensure that our schools offer students the opportunity to acquire the knowledge and skills necessary for success.

Why are state-level academic standards important? Public education is a state responsibility. The state superintendent and legislature must ensure that all children have equal access to high quality education programs. At a minimum, this requires clear statements of what all children in the state should know and be able to do as well as evidence that students are meeting these expectations. Furthermore, academic standards form a sound basis on which to establish the content of a statewide assessment system.

Why does Wisconsin need its own academic standards? Historically, the citizens of Wisconsin are very serious and thoughtful about education. They expect and receive very high performance from their schools. While educational needs may be similar among states, values differ. Standards should reflect the collective values of the citizens and be tailored to prepare young people for economic opportunities that exist in Wisconsin, the nation, and the world.

Developing the Academic Standards

Who wrote the academic standards and what resources were used? Academic standards for the non-state-assessed subjects were drafted by task forces appointed by the state superintendent. The task forces consisted of educators, parents, board of education members, and business and industry people. After reviewing national standards in the subject area, standards from other states, and standards from local Wisconsin school districts, each task force diligently and thoughtfully composed the academic standards for its respective subject.

How was the public involved in the standards process? Public input is crucial to the success of implementing high-quality standards. It was absolutely essential that the final academic standards reflect the values of Wisconsin's citizens.

Forums, focus groups, and input on the discussion drafts of the academic standards were used for getting citizens' ideas. Drafts of the standards were widely available throughout the state—including the DPI home page available on the Internet. All input received serious consideration.

Using the Academic Standards

Must a district adopt Wisconsin's Model Academic Standards? Adopting Wisconsin's Model Academic Standards is voluntary, not mandatory. By law, however, districts must have academic standards in place by August 1, 1998, in reading and writing, geography and history, mathematics, and science. Districts may adopt the model state standards, or standards from other sources, or develop their own standards. Although not required by law to have standards in the other subjects, districts may choose to adopt or develop academic standards in those areas as well.

How will local districts use the academic standards? Districts may use the academic standards as guides for developing local grade-by-grade curriculum. Implementing standards may require some school districts to upgrade school and district curriculums. In some cases, this may result in significant changes in instructional methods and materials, local assessments, and professional development opportunities for the teaching and administrative staff.

Do academic standards in the vocational areas mean that districts need to offer electives in these subjects at the elementary and middle school levels? Most subjects are developmental—they build upon previously learned knowledge and skills. In addition, subjects include knowledge and skills that are of great value to all students regardless of their future life and career plans.

The model academic content and performance standards developed for the vocational areas include subject matter that all students should learn. In many cases, students are already learning these in elementary and middle school. The academic standards for vocational areas are a means to assist teachers in knowing if they are meeting the needs of students by preparing them for future opportunities.

With the academic standards in vocational areas at the fourth and eighth grade levels, it is not expected new elective courses will need to be instituted. Current middle and high school vocational teachers are encouraged to work with elementary and middle school teachers from other subject areas to connect curriculum experiences.

Why do some of the subjects also benchmark for "emphasis students" as well as for grades 4, 8, and 12? Most subjects include knowledge and skills that are of great value to all students. Identified knowledge and skills should be part of the performance standards for all students. In addition, some vocational subjects include more in-depth knowledge and skills that are necessary for specific applications. Students should be able to pursue courses requiring in-depth knowledge and skills that are consistent with their life and career plans. The standards directed at "emphasis students" address a much higher level of performance in that subject.

How do DPI skill standards fit with the academic standards currently being developed? Academic content, performance, and proficiency standards focus on expectations about what all students should know and be able to do, how they will show that they have met the standards, and at what level or quality of performance.

Skill standards include content from multiple disciplines and define what productive workers in an occupational cluster or industry sector need to know and be able to do.

What is the difference between academic standards and curriculum? Standards are statements about what students should know and be able to do, what they might be asked to do to give evidence of learning, and how well they should be expected to know or do it. Curriculum is the program devised by local school districts used to prepare students to meet standards. It consists of activities and lessons at each grade level, instructional materials, and various instructional techniques. In short, standards define what is to be learned at certain points in time, and from a broad perspective, what performances will be accepted as evidence that the learning has occurred. Curriculum specifies the details of the day-to-day schooling at the local level.

What is the link between statewide academic standards and statewide testing? Statewide academic standards in mathematics, English language arts, science, and social studies determine the scope of statewide testing. While these standards are much broader in content than any single Wisconsin Student Assessment System (WSAS) test, they do describe the range of knowledge and skills that may appear on the tests. If content does not appear in the academic standards, it will not be part of a WSAS test. The statewide standards clarify what must be studied to prepare for WSAS tests. If students have learned all of the material indicated by the standards in the assessed content areas, they should do very well on the state tests.

Relating the Academic Standards to All Students

Parents and educators of students with disabilities, with limited English proficiency (LEP), and with accelerated needs may ask why academic standards are important for their students. Academic standards serve as a valuable basis for establishing meaningful goals as part of each student's developmental progress and demonstration of proficiency. The clarity of academic standards provides meaningful, concrete goals for the achievement of students with disabilities, LEP, and accelerated needs consistent with all other students.

Academic standards may serve as the foundation for individualized programming decisions for students with disabilities, LEP, and accelerated needs. While the vast majority of students with disabilities and LEP should be expected to work toward and achieve these standards, accommodations and modifications to help these students reach the achievement goals will need to be individually identified and implemented. For students with disabilities, these decisions are made as part of their individualized education program (IEP) plans. Accelerated students may achieve well beyond the academic standards and move into advanced grade levels or into advanced coursework.

Clearly, these academic standards are for all students. As our state assessments are aligned with these standards and school districts adopt, adapt, or develop their own standards and multiple measures for determining proficiencies of students, greater accountability for the progress of all students can be assured. In Wisconsin this means all students reaching their full individual potential, every school being accountable, every parent a welcomed partner, every community supportive, and no excuses.

Applying the Academic Standards Across the Curriculum

When community members and employers consider what they want citizens and employees to know and be able to do, they often speak of broad areas of applied knowledge such as communication, thinking, problem-solving, and decision-making. These areas connect or go beyond the mastery of individual subject areas. As students apply their knowledge both within and across the various curricular areas, they develop the concepts and complex thinking of educated persons.

Community members need these skills to function as responsible citizens. Employers prize those employees who demonstrate these skills because they are people who can continue learning and connect what they have learned to the requirements of a job. College and university faculty recognize the need for these skills as the means of developing the level of understanding that separates the expert from the beginner.

Teachers in every class should expect and encourage the development of these shared applications, both to promote the learning of the subject content and to extend learning across the curriculum. These applications fall into five general categories:

1) Application of the Basics

2) Ability to Think
- — Problem-solving
- — Informed decision-making
- — Systems thinking
- — Critical, creative, and analytical thinking
- — Imagining places, times, and situations different from one's own
- — Developing and testing a hypothesis
- — Transferring learning to new situations

3) Skill in Communication
- — Constructing and defending an argument
- — Working effectively in groups
- — Communicating plans and processes for reaching goals
- — Receiving and acting on instructions, plans, and models
- — Communicating with a variety of tools and skills

4) Production of Quality Work
- — Acquiring and using information
- — Creating quality products and performances
- — Revising products and performances
- — Developing and pursuing positive goals

5) Connections with Community
- — Recognizing and acting on responsibilities as a citizen
- — Preparing for work and lifelong learning
- — Contributing to the aesthetic and cultural life of the community
- — Seeing oneself and one's community within the state, nation, and world
- — Contributing and adapting to scientific and technological change

Overview of Agricultural Education

"Agriculture," "agricultural system," and "food, fiber, and natural resources" are used interchangeably throughout the document. These terms encompass the production of agricultural commodities, including food, fiber, wood products, horticultural crops, and other plant and animal products. Agriculture, however, extends beyond production to include the financing, processing, marketing, and distribution of agricultural products; farm production supply and service industries; health, nutrition and food consumption; the application of science; the use and conservation of land and water resources; development and maintenance of recreational resources; and related economic, sociological, political, environmental, and cultural characteristics of the food and fiber system.

These standards address two major elements, agricultural literacy (education about agriculture), and agricultural education (education in agriculture). Agricultural literacy is a target for all students. They should receive systematic instruction about agriculture beginning in kindergarten and continuing through grade 12. Agriculturally literate people have knowledge of food and fiber production, processing, food safety, and domestic and international marketing. They understand the impact of agriculture on the environment. They have practical knowledge about lawns, gardens, recreational areas, and caring for animals, especially household pets. However, some students will choose agriculture as a career. They will be interested in agricultural education as well as agricultural literacy. The standards also include content for agricultural education classes in order to meet the needs of those students.

Standards are suggested for students enrolled in agricultural education classes in grades 6-8 and 9-12. These standards have been stated broadly so that school districts can tailor standards to meet local needs. Specialty areas such as veterinary science, equine science, food science and safety, biotechnology, agricultural mechanics, emu production, aquaculture, horticulture and landscaping, as well as deer, elk, and bison production reflect the unique nature of agricultural education programs across the state. With such variety, flexibility is critical.

Students in districts with an agricultural education program have the opportunity to have a comprehensive agricultural education experience. Classroom learning, workplace learning, and activities learned through the student youth group (FFA) that connect the first two components with their community comprise the agriculture education program. Students can make sense of their learning in the context of agricultural systems with added opportunities for entrepreneurship through this three-prong approach. This approach is made possible through a 40-day extended contract during the summer months for agricultural education instructors.

Teachers are encouraged to modify lesson plans to incorporate the agricultural education standards into their classroom. Performance standards for all students are designed to be incorporated into existing courses and would not have to be taught separately. **The agricultural education standards have been cross-referenced to the standards for English language arts (LA), mathematics (MA), science (SC), and social studies (SS).** This was done to facilitate the inclusion of application, problem-solving, and critical-thinking using agricultural systems as a means to integrate the curriculum. Students who

learn in the context of the real world find greater relevance in what they are learning. Agricultural literacy can only be accomplished with the cooperation of the local school board, administration, curriculum developers, teachers, and parents.

The agricultural performance standards are organized in several clusters. The performance standards identified for grades four, eight, and twelve have been developed for all students in all school districts regardless of whether or not an agricultural program exists. Performance standards for middle and high school agriculture students are also listed. Students enrolled in agricultural education classes in grades 6-12 are expected to achieve the performance standards suggested for all students and also to achieve the performance standards listed for students in agricultural education classes.

School districts with agricultural education programs should use DPI publication 0110, Instruction for Food & Fiber and Natural Resources, to develop local standards. The competencies listed in the 86 units of instruction can be used to meet these academic standards.

A. GLOBAL AGRICULTURAL SYSTEMS

Content Standard

Students will learn about the role of food, fiber, and natural resource systems in their lives and the lives of others around the world.

Rationale:

Knowledge of global agricultural systems and the natural resources required to produce food and fiber used in daily life leads students to understand the relationship between production and sustainability. Understanding food and fiber production, distribution, and consumption at local, national, and international levels allows students to comprehend the complex interdependence that exists within agriculture.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

A.4.1 Understand how products made from plants and animals are made available for use by people (*see SC B.4.1; SS D.4.3, A.4.5*)
- explain how food is transported
- describe ways that people get food—grow their own, farmers' market, grocery stores, catalogues, etc.
- know which foods from their diet are produced in Wisconsin and which must be imported from other states and nations
- identify careers related to production and distribution of food to a local community

A.4.2 Understand how cultural influences shape how people use food and fiber (*see SS A.4.7, E.4.4, E.4.13*)
- compare their diet to diets of students in other cultures
- give examples of how animals are raised and used in other cultures

A.4.3 Explain how climate affects plants and animals raised (*see SC F.4.1, F.4.2; SS A.4.4*)
- identify ways climate affects plants and animals that are produced and live in various regions in Wisconsin
- identify the different agricultural products that are produced in various geographic regions of Wisconsin

By the end of grade 8 students will:

A.8.1 Explain how geography affects plants and animals raised for food and fiber uses (*see SS A.8.1, A.8.4*)
- understand and relate the role of how natural resources impact the kinds of food and fiber produced in various regions of the world

- describe how the climate of a country determines the type of food and fiber products produced
- compare and contrast the impact weather systems have on food and fiber products produced in the world

A.8.2 Understand the variety, complexity, and size of the agricultural industry in Wisconsin and the U.S. (*see SS D.8.2, D.8.3*)
- explore agriculture careers that exist at local, national, and international levels
- investigate how agriculture careers affect their local and state community
- understand how food and fiber are distributed nationally

A.8.3 Explain how the need for food and fiber creates interdependence among cultures and countries (*see SS D.8.4, E.8.10, E.8.15*)
- identify food and fiber products grown in Wisconsin that are also grown worldwide
- describe Wisconsin's role in global food production
- list agricultural products produced in various countries and determine their global use
- list food and fiber commodities grown in America in quantities sufficient for export and those commodities that must be imported because of insufficient quantities

A.8.4 Explain how economic and geographic factors affect food selection (*see SS D.8.1, D.8.4, D.8.7*)
- understand how family income and location affect food purchase options
- understand how family income influences decisions about food purchased thus affecting the health of the family

By the end of grade 8 agricultural education students will:

A.6-8.1 Engage in applied learning opportunities that focus on the use of plants and/or animals in agriculture

A.6-8.2 Begin exploring global agricultural system careers through a work-based program

A.6-8.3 Recognize the importance of community service

A.6-8.4 Develop leadership skills through participation in FFA

By the end of grade 12 students will:

A.12.1 Identify how political policies and issues shape and influence food and fiber systems (*see SS D.12.4, D.12.8, D.12.13*)
- analyze environmental issues that influence the food and fiber system in Wisconsin, the nation, and the world

- understand how a country's infrastructure affects food and fiber distribution
- be aware of the involvement and influence of government agencies on marketing of food and fiber commodities
- understand the effects of urbanization on a society and its ability to produce food
- identify and analyze food-fiber production/processing issues that cross state and country boundaries (e.g., water use and water pollution)

A.12.2 Understand the variety, complexity, and size of the agricultural industry in the world (*see SS D.12.2, D.12.8*)

- trace the pathway of food and fiber from origin to consumer at local, state, national, and international levels
- give examples of recent food safety issues
- understand how food and fiber are distributed internationally
- give examples of trade agreements that influence the global marketing of food and fiber commodities
- explain why language and cultural understanding are key to international careers

A.12.3 Describe how global interdependence benefits the production and distribution of food and fiber (*see SS D.12.4*)

- explain how the interdependence of food and fiber production impacts the price of consumer products
- understand the economic advantage of producing food and fiber in one country vs. another country

By the end of grade 12 agricultural education students will:

A.9-12.1 Engage in applied learning experiences that incorporate global agricultural principles

A.9-12.2 Continue developing career interests within a work-based program that includes international career opportunities

A.9-12.3 Participate actively in community service

A.9-12.4 Develop advanced leadership skills through participation in FFA

**Note: The standards for agriculture education students in grades 6-12 have been identified in their broadest form in order to provide school districts the opportunity to tailor standards to meet local needs.*

B. TECHNOLOGY/INFORMATION

Content Standard

Students will demonstrate the ability to access information from multiple sources, synthesize the information, and use it for the technological improvement and stewardship of food, fiber, and natural resource systems.

Rationale:

The use of technology for gathering information and producing products within the food, fiber, and natural resource industries is essential in the global marketplace. Producers, processors, manufacturers, and researchers who utilize technology will be able to compete better in the global marketplace. Students must realize that using technology and understanding its potential are lifelong skills necessary for employment and existence in society.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

B.4.1 Demonstrate an awareness of the different types of technology available to them and how technology affects society (*see Language Arts [LA] E.4.3*)

- select the appropriate technology for designing and creating a flyer selling pizza or other food products
- identify examples of technology found at home, at school, in a community, in an agribusiness, or on a farm

B.4.2 Select and use appropriate technology to complete a task (*see LA A.4.4, E.4.1; SC A.4.3*)

- access information about careers in the food, fiber, and natural resource systems
- access information to compare food, fiber, and natural resource systems that are similar to and different from Wisconsin's

B.4.3 Identify resources and information that explain how people produce and use food, fiber, and natural resources (*see LA F.4.1; SC A.4.5; SS D.4.4*)

- locate information about local food, fiber, and natural resource systems
- locate information about Wisconsin food, fiber, and natural resource systems
  - — cranberries
  - — maple syrup
  - — paper
  - — dairy
  - — fishing, resorts, recreation
  - — livestock
  - — farm markets

B.4.4 Explore career opportunities in food, fiber, and natural resources using various information resources (*see LA F.4.1; SC G.4.1*)
- develop a collage of agricultural careers
- interview family or community members who have careers in food, fiber, or natural resources

By the end of grade 8 students will:

B.8.1 Describe the need for data to make decisions (*see SC E.8.3; SS D.8.8*)
- explain the practical uses of weather forecasting data as it relates to the agriculture industry (e.g., lawn care, landscaping, construction, farming, commodity pricing)
- plan a class or school store and determine what items might sell best
- listen to a presentation about career areas in the food and fiber industry

B.8.2 Understand how technology is affecting the food and fiber industry (*see LA C.8.3; SC C.8.8*)
- take a field trip to an agribusiness or farm that uses state-of-the-art technology
- access information about food, fiber, and natural resources to compare the economic implications throughout the U.S. and world
- access information about precision farming and decisions impacted by the availability of data from Global Positioning Systems (GPS)
- access information about Integrated Pest Management (IPM), and explain how this technology benefits society
- explain how technology contributes to food safety

B.8.3 Access and apply information in the evaluation of natural resource use (*see SC G.8.7, H.8.2*)
- access and apply information in the study of water pollution causes and remediation (surface water, groundwater)
- discuss technology applications in wildlife/natural resource management (e.g., radio monitoring devices)

B.8.4 Understand that trade-offs are made with the adoption of new technologies (*see SC G.8.2, G.8.3*)
- realize that new technologies require additional training and education
- explain how getting food from many different places makes people less dependent on weather; however, it increases dependence on transportation and communications
- identify current technologies that have increased producer efficiencies

By the end of grade 8 agricultural students will:

B.6-8.1 Engage in applied learning opportunities using technology

B.6-8.2 Begin exploration of technology and information systems careers through a work-based program

B.6-8.3 Recognize the importance of community service

B.6-8.4 Develop leadership skills through participation in FFA

By the end of grade 12 students will:

B.12.1 Apply knowledge of technology to identify and solve problems (*see SC H.12.3, H.12.4, H.12.5*)
- use a software program to compile and analyze statistical data and prepare a presentation for a group
- use an integrated software program to solve a business-related problem
- prepare a report predicting how technology may change various aspects of the food and fiber industries

B.12.2 Select and communicate information in an appropriate format; e.g., oral, written, graphic, pictorial, multimedia (*see LA B.12.1, C.12.1*)
- prepare a three-year financial report showing the annual revenue and expenses of a student organization and present that information to the group (e.g., FFA, student council, etc.)
- design a chart or graph to evaluate personal progress toward a goal or objective
- collect the necessary data from local employers to develop a speakers' bureau for the school
- complete a job application correctly

B.12.3 Use technology to acquire, organize, and communicate information by entering, modifying, retrieving, and storing data (*see LA B.12.2*)
- construct a computer-generated form to survey local employers for possible participation in a job shadowing program, mentorships, Supervised Agricultural Experience, and co-op education sites
- use graphics software to present survey finding to the class
- use telecommunications software to access and communicate information about the food industry (e.g., food safety, product development, commodity pricing)
- use presentation graphics software which illustrates to a group of employers the benefits of work-based learning through a Supervised Agricultural Experience Program
- use technology to record and organize statistical information for a school fundraising event (e.g., sales of fruit, flowers, cheese, candy, bedding plants)

B.12.4 Access and use information for a class presentation about the impact of new technologies on the products manufactured and produced; e.g., biotechnology (*see LA C.12.1*)
- satellite technology (global positioning systems and its applications)

- biotechnology (e.g., cloning, genetic engineering, medicine, criminal justice, vaccines, enzyme manufacturing)

B.12.5 Explore various career opportunities in the food, fiber, and natural resources industries using available forms of technology (*see LA B.12.2*)
- seek information from CD-ROMs and the World Wide Web
- interview employers and/or current employees using current technologies (e.g., videoconferencing, e-mail, videophone)
- visit websites of potential employers
- develop a brochure about a career or company to present to the class

B.12.6 Access information identifying the postsecondary education programs, both in and outside of Wisconsin, leading to careers in the food, fiber, and natural resources industries (*see LA C.12.2, C.12.3*)
- visit websites of education institutions
- conduct a panel discussion presenting the strengths of various education institutions
- develop a brochure about an education institution to present to the class

By the end of grade 12 agricultural students will:

B.9-12.1 Engage in applied learning opportunities emphasizing technology, information management, and mechanical principles

B.9-12.2 Continue developing career interests in technology, information, and mechanical applications through a work-based program

B.9-12.3 Participate actively in community service

B.9-12.4 Develop advanced leadership skills through participation in FFA

**Note: The standards for agriculture education students in grades 6-12 have been identified in their broadest form in order to provide school districts the opportunity to tailor standards to meet local needs.*

C. LEADERSHIP

Content Standard

Students in Wisconsin will learn about leadership as it affects individuals, organizations, and systems in food, fiber, and natural resources enterprises.

Rationale:

Knowledge of the concepts and processes of leadership and citizenship will assist students in gaining an appreciation of the role leadership plays in shaping individuals, organizations, and society. Effective leadership and human relations skills are critical for personal growth and career success.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

C.4.1 Define leadership and leadership styles (*see LA B.4.1; SS C.4.1, E.4.1, E.4.2; and SC B.4.*2)
- give examples of the various kinds of leadership and leadership behaviors
- recognize the importance of understanding diversity in people and the need for varied forms of communication
- discuss the importance of personal leadership and self-concept development
- describe the types of individuals who emerge as a group's leader
- explain the abilities and skills that contribute to leadership
- select qualities of successful leaders

C.4.2 Demonstrate the goal-setting process (*see SC C.4.7, H.4.4*)
- identify goals and their importance
- describe the principles of setting goals

C.4.3 Practice skills relating to communication, problem-solving, and decision-making through individual, group, and team processes (*see LA C.4.1, C.4.3, D.4.2; SS C.4.1, C.4.3, C.4.6, E.4.6, E.4.8*)
- list the forms communication takes
- participate in a speaking activity
- explain the importance of problem-solving and decision-making

C.4.4 Describe the relationship between career choices and leadership abilities (*see SC G.4.1, G.4.2*)
- describe the various roles of leaders as employers
- describe the various roles of leaders as employees

By the end of grade 8 students will:

C.8.1 Describe the various kinds of leadership and leadership behaviors (*see LA C.8.1, C.8.2, C.8.3; SS E.8.2*)
- analyze various forms of leadership
- discuss the contributions of student organizations to leadership development
- recognize the importance of diversity in people and need for varied forms of communication
- discuss the importance of personal leadership development
- describe the types of individuals who emerge as a group's leader
- identify the importance of ethics in leadership positions

C.8.2 Identify characteristics of successful leaders (*see LA B.8.1, B.12.1, C.8.1, C.8.2, C.8.3, D.8.2*)
- explain the relationship between personality types and leadership styles
- describe human relations, technical, and conceptual leadership qualities and skills
- explain the relationship between communication and leadership
- utilize different techniques to improve listening, reading, writing, speaking, and nonverbal communication skills
- participate in a speaking activity

C.8.3 Describe responsibilities of various leadership roles within an organization (*see LA C.8.1, C.8.2, C.8.3, D.8.2; SS E.8.5, E.8.15; MA A.8.1, B.8.7; SC A.8.4, A.8.5, H.8.2*)
- discuss the importance of democratic group leadership
- demonstrate how to lead a group discussion and involve group members
- differentiate between the terms "problem," "problem-solving," and "decision-making"
- demonstrate the goal-setting process
- participate in the development of an organization's goals and plan of activities
- participate in an organization's meeting

C.8.4 Discuss the factors that affect the development of self-concept by noting characteristics of people with a positive self-concept (*see LA C.8.1, C.8.3; SS E.8.1, E.8.2*)
- describe the characteristics of people with a positive self-concept
- identify the importance of ethics in leadership positions

By the end of grade 8 agricultural students will:

C.6-8.1 Engage in applied learning experiences that require using leadership techniques

C.6-8.2 Begin career exploration within a work-based program where leadership skills are essential

C.6-8.3 Recognize the importance of community service

C.6-8.4 Develop leadership skills through participation in FFA

By the end of grade 12 students will:

C.12.1 Demonstrate a working knowledge of leadership and leadership styles (*see LA C.12.1, C.12.2, C.12.3, D.12.2; SS C.12.13, E.12.15, E.12.17*)
- describe democratic, authoritarian, and situational (contingency) behavioral leadership styles
- recognize the importance of understanding diversity in people and the need for varied forms of communication
- discuss the importance of personal leadership development and self-concept development
- describe the types of individuals who emerge as a group's leader
- explain the abilities and skills that contribute to leadership
- identify qualities of successful leaders
- describe human relations, technical, and conceptual leadership qualities and skills
- explain learning styles and how they affect leadership abilities
- identify the importance of ethics in leadership positions

C.12.2 Practice skills relating to communication, problem-solving, and decision-making through individual, group, and team processes (*see LA B.12.1, C.12.1, C.12.2, C.12.3, D.12.2; SS E.12.15*)
- demonstrate the goal-setting process
- demonstrate the relationship between communication and leadership
- identify ways to adapt individual communication style to various situations
- employ strategies to improve listening, reading, writing, speaking, and nonverbal communication
- participate in a public presentation

C.12.3 Develop leadership skills in club, classroom, or organization settings (*see LA C.12.1, C.12.2, C.12.3; SS C.12.10*)
- conduct an effective meeting
- participate in the development of an organization's goals and plan of activities

C.12.4 Identify the connections between career choices and leadership abilities (*see LA 4.12.1; SS C.12.10*)
- explain how leadership relates to personal characteristics when considering career interests
- identify leadership characteristics developed through participation in career development activities such as Supervised Agricultural Experience, State Certified Co-op, and other work-based learning experiences
- describe the various roles of leaders as employers and employees

By the end of grade 12 agricultural students will:

C.9-12.1 Engage in applied learning experiences that require using leadership techniques

C.9-12.2 Continue developing career interests within a work-based program emphasizing leadership skills

C.9-12.3 Participate actively in community service

C.9-12.4 Develop advanced leadership skills through participation in FFA

**Note: The standards for agriculture education students in grades 6-12 have been identified in their broadest form in order to provide school districts the opportunity to tailor standards to meet local needs.*

D. AGRISCIENCE/PRODUCTION

Content Standard

Students will demonstrate an understanding of the scientific principles and societal implications involved in the production and processing of food and fiber as well as in the ornamental horticulture industry.

Rationale:

Students need an understanding of the scientific principles underlying the production of food, fiber, and ornamental plants and the relationship that this has to their daily lives. Knowledge of the concepts of agriscience production and processing will assist students in making informed consumer choices. By learning about the production of food, fiber, and ornamental plants, students understand the impact agriscience makes on their communities and communities throughout the world.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

D.4.1 Understand that food and fiber originate from plants and animals (*see SC F4.1, F.4.2; SS A.4.5, A.4.7, D.4.3, D.4.6*)

- identify food and fiber products grown and/or produced locally and statewide
- identify the five basic food groups and give examples for each group from their diet
- understand the origin of food contained in a common food; such as, pizza, cheeseburger, sub sandwich
- understand the principles of plant growth in both soil and water
- compare and contrast plants and animals

D.4.2 Understand that the food and fiber system uses natural resources (*see SC F.4.1, F.4.2; SS A.4.6*)

- discuss and give examples of natural resources used in their daily lives to produce food, fiber, and ornamental plants
- describe the importance of soil, air, water, and energy to food and fiber production

D.4.3 Demonstrate safe practices around plants and animals (*see SC H.4.3*)

D.4.4 Identify emerging technologies within hydroponics, aquaculture, and biotechnology (see LA F.4.1; SC B.4.3, G.4.3, H.4.2; SS B.4.8)

D.4.5 Identify careers in the areas of food, fiber, and ornamental plant production and processing (*see SC G.4.1, G.4.2*)

By the end of grade 8 students will:

D.8.1 Explain that the food and fiber industry is a complex system of production, processing, marketing, and distribution (*see LA A.8.4; SS D.8.3*)
- identify food, fiber, and ornamental plants produced in Wisconsin and exported
- understand the nutritional requirements of plants and animals
- understand the processing involved with a common food product; such as, pizza, cheeseburger, sub sandwich
- analyze the impact of food, fiber, and ornamental plant products on their daily life

D.8.2 Understand the role of natural resources and identify the resources (rivers, groundwater, lakes, forests, farmland) essential to the food, fiber, and the ornamental horticulture industry in Wisconsin (*see SC F.8.9; SS A.8.4, A.8.5, D.8.7, D.8.11*)

D.8.3 Understand the basic care of plants and animals (*see SC F.8.1, F.8.6, F.8.7*)

D.8.4 Undertake projects that reflect real world agricultural careers; such as, growing plants, small animal care, forestry (*see SC G.8.1, G.8.2, G.8.3*)

D.8.5 Compare and contrast various methods of producing food such as conventionally and organically grown food (*see LA F.8.1; SC F.8.10*)

D.8.6 Identify potential health concerns resulting from the transmission of diseases between animals and humans (*see SC H.8.3*)

D.8.7 Explain the emerging technologies within hydroponics, aquaculture, and biotechnology (*see LA F.8.1; SS A.8.10, B.8.9, D.8.*4)

By the end of grade 8 agricultural students will:

D.6-8.1 Engage in applied learning opportunities that focus on the use of plants and/or animals in agriculture

D.6-8.2 Begin exploration of careers in agriscience or agricultural production of plants and/or animals through a work-based program

D.6-8.3 Recognize the importance of community service

D.6-8.4 Develop leadership skills through participation in FFA

By the end of grade 12 students will:

D.12.1 Describe the global utilization of Wisconsin's food, fiber, and ornamental plant products (*see SS A.12.5, A.12.7, D.12.2, D.12.3, D.12.13*)
- understand how plants and animals are used differently in different parts of the world
- identify global distribution patterns of food, fiber, and ornamental plant products produced in Wisconsin

D.12.2 Discuss the impact that climate and water have on the food, fiber, and ornamental horticulture production cycles throughout the world (*see SC F.12.8, H.12.1; SS A.12.6, A.12.8*)

D.12.3 Understand how public policy affects the food, fiber, and ornamental plant industries (*see LA A.12.4, F.12.1; SC H.12.1-7; SS A.12.12*)
- cite examples of conflicts between environmentalists and producers of food and fiber
- discuss the importance of food safety as it relates to the production of food products
- discuss the impact of state and federal plant and animal marketing regulations as they relate to providing safeguards to the consumer and the industry

D.12.4 Explore traditional and nontraditional food, fiber, and ornamental horticultural jobs/careers and identify the necessary skills, aptitudes, and abilities (*see SC A.12.5, G.12.1*)

D.12.5 Describe how biotechnology can enhance food and fiber production (*see SC G.12.3, G.12.5*)

D.12.6 Understand the impact emerging technologies within hydroponics, aquaculture, and biotechnology have on the food and fiber industries and natural resources (*see LA F.12.1; SC B.12.4, C.12.2, G.12.3, G.12.4; SS B.12.9, D.12.4*)

By the end of grade 12 agricultural students will:

D.9-12.1 Engage in applied learning opportunities emphasizing agriscience and production principles

D.9-12.2 Continue developing career interests in agriscience or production agriculture careers through a work-based program

D.9-12.3 Participate actively in community service

D.9-12.4 Develop advanced leadership skills through participation in FFA

**Note: The standards for agriculture education students in grades 6-12 have been identified in their broadest form in order to provide school districts the opportunity to tailor standards to meet local needs.*

E. ECOLOGY/ENVIRONMENT

Content Standard

Students will understand the relationships between natural resources, ecological processes, and the production and processing of food and fiber.

Rationale:

Land and other natural resources need to be managed in a sustainable manner. Balance and agreement need to occur among producers, processors, manufacturers, scientists and other users of natural resources. Students, as citizens, must learn to make informed choices about their environment based on facts.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

E.4.1 Identify various plants and animals and the ways humans benefit from them (*see SC F.4.1, F.4.2, F.4.3, F.4.4*)

E.4.2 Identify the different ways land is used (*see SC F.4.2; SS A.4.8*)
- recognize how land use affects plants, domestic animals, and wildlife
- identify the different uses of land in one's community

E.4.3 Understand how different climatic conditions determine the plants that are grown in an area (*see SC E.4.5*)

E.4.4 Identify causes of soil erosion (*see SC E.4.2*)

E.4.5 Identify the way chemicals are used safely in the growing of plants and animals (*see SC H.4.1*)
- define a chemical
- identify the different reasons for using chemicals when growing plants and raising animals
  — herbicides
  — insecticides
  — fungicides
  — rodenticides
- demonstrate good safety practices using home and farm chemicals

E.4.6 Identify ways in which agricultural use of the land impacts the environment (*see SS A.4.4*)
- give examples of how agricultural practices (including aquaculture) impact water supply and water quality for both groundwater and surface water
- understand what natural resources are and be able to classify them as renewable or nonrenewable
- identify materials used in packaging food and fiber products
- list the common types of air pollutants

By the end of grade 8 students will:

E.8.1 Explain the components of sustainable agriculture (*see SC F.8.8, F.8.9, F.8.10*)

E.8.2 Describe and give examples of how land use impacts the environment (*see SS A.8.4*)
- explain how urbanization has impacted native ecosystems
- explain how agricultural use of land has impacted native ecosystems
- explain how urbanization has impacted agricultural land

E.8.3 Understand how climatic conditions affect crops grown regionally (*see SC E.8.3; SS A.8.6*)

E.8.4 Explain common soil erosion prevention practices (*see SC G.8.5*)

E.8.5 Understand how chemicals affect food production (*see SC G.8.3; SS A.8.10*)
- understand the impact of chemicals used in a variety of agricultural practices; such as, conventional, sustainable, minimal till, no till
- understand the ways that plants and animals may be affected by chemicals

E.8.6 Describe the impact of food and fiber processing on the environment (*see SC G.8.3*)
- identify all the renewable and nonrenewable resources used in the production of a specific food or fiber commodity
- identify the plant and animal wastes that result from the food and fiber industry and suggest uses for the waste
- evaluate the impact of food and fiber processing on water supply and water quality of both groundwater and surface water

By the end of grade 8 agricultural students will:

E.6-8.1 Engage in applied learning opportunities that focus on the use of plants and/or animals in agriculture

E.6-8.2 Begin exploration of environmental careers that work closely with the agricultural system through a work-based program

E.6-8.3 Recognize the importance of community service

E.6-8.4 Develop leadership skills through participation in FFA

By the end of grade 12 students will:

E.12.1 Understand the application of agricultural technologies that can sustain production while reducing environmental impact (*see SC G.12.3*)

E.12.2 Analyze benefits, costs, and consequences of land use (*see SC G.12.3, H.12.1; SS A.12.12*)
- determine the potential land use for the following using soil maps: food and fiber production; residential, commercial, and industrial development; and, transportation rights-of-way
- compare and contrast economic and recreational benefits of land use
- explain, design, and demonstrate projects that can improve wildlife habitat

E.12.3 Explain the impact of climate change on existing agricultural systems (*see SC E.12.1; SS A.12.6*)

E.12.4 Analyze practices used by farmers to reduce erosion and runoff to maintain soil fertility and productivity (*see SC H.12.5*)

E.12.5 Analyze the impact and use of chemicals in the production and processing of food and fiber (*see SC F.12.8*)
- evaluate the benefits and risks of different agricultural production and processing methods
- debate the advantages and disadvantages of chemically produced food and fiber

E.12.6 Analyze benefits, costs, and consequences of processing food and fiber on the environment (*see SC H.12.1*)
- identify methods of producing various food or fiber commodities with sensitivity to the use of renewable and nonrenewable resources
- explain how organic and inorganic wastes resulting from the production of food and fiber are handled

By the end of grade 12 agricultural students will:

E.9-12.1 Engage in applied learning opportunities emphasizing ecological and environmental principles

E.9-12.2 Continue developing environmental stewardship career interests within a work-based program

E.9-12.3 Participate actively in community service

E.9-12.4 Develop advanced leadership skills through participation in FFA

**Note: The standards for agriculture education students in grades 6-12 have been identified in their broadest form in order to provide school districts the opportunity to tailor standards to meet local needs.*

F. BUSINESS MANAGEMENT AND MARKETING

Content Standard

Students will learn about the operations and economic impact of agricultural business in a world economy.

Rationale:

People make complex economic choices related to the allocation of food, fiber, and natural resources. The collective role of consumers, producers, and workers directs business and markets to process, add value, and distribute agricultural products as demanded. It is essential that students learn to make informed choices through the study of production, processing, distribution, and consumption of food and fiber.

PERFORMANCE STANDARDS

By the end of grade 4 students will:

F.4.1 Explain how food produced is part of a local economic system (*see MA A.4.3, B.4.7; SS D.4.3*)

- conduct an inventory of food products that are part of their daily lives
- identify local businesses that supply food products
- identify agricultural products other than food
- recognize the monetary value of food, whether purchased from a store or produced in a garden
- discuss the distribution of dollars spent on food

F.4.2 Discuss changes that occur when food items move from production to consumption (*see MA A.4.1, A.4.3, B.4.7; SS D.4.6*)

- identify the path a food product takes from production to consumption
- give examples of how each step in the path to market adds value and cost to the commodity

F.4.3 Explain how a producer's product surplus allows for the development of trade (*see MA E.4.4; SS D.4.7*)

- inventory food, fiber, and natural resource items available locally
- distinguish between food, fiber, and natural resource items wanted and those needed

F.4.4 Recognize that a variety of occupations are involved in agricultural businesses (*see LA F.4.1*)

- identify people who are associated with getting food products from where they are produced to where they are consumed
- identify jobs/careers associated with agricultural products other than food (e.g., fiber and natural resources)
- list the knowledge and skills necessary for jobs in the food, fiber, and natural resources industry

By the end of grade 8 students will:

F.8.1 Explain how food, fiber, and natural resources are part of a global economy (*see MA A.8.1, E.8.1; SS D.8.3*)
- identify food, fiber, and natural resource items used in their daily lives
- identify local, regional, national, and international entities that process and distribute food and fiber, and categorize them under the headings of processor, wholesaler, or retailer
- identify the businesses that are involved in getting food and natural resource items from where they are produced or processed to where they are consumed
- explain the distribution of money within the marketing of a product from production to consumer

F.8.2 Recognize that agricultural businesses produce, process, transport, and sell food, fiber, and natural resources to make a profit (*see MA A.8.1, B.8.7, E.8.1, E.8.4; SS D.8.8*)
- compare the wants and needs of consumers to the cost and production levels of food, fiber, and natural resource items
- calculate the value of agricultural commodities found on a typical farm

F.8.3 Inventory personal interests and abilities to plan for a potential occupation in an agricultural business (*see LA F.8.1*)
- identify the people/careers involved in processing and distributing food and fiber from the raw products to the consumer
- determine skills, abilities, and interests required of people involved in processing and distributing food and fiber from the raw products to the consumer
- compare requirements of jobs/careers associated with food, fiber, and natural resources with their own interests and abilities

By the end of grade 8 agricultural students will:

F.6-8.1 Engage in applied learning experiences that require using the principles of management and marketing related to agricultural systems

F.6-8.2 Begin exploration of management and marketing careers through a work-based program

F.6-8.3 Recognize the importance of community service

F.6-8.4 Develop leadership skills through participation in FFA

By the end of grade 12 students will:

F.12.1 Describe how the production, distribution, and marketing of food and fiber is part of a complex economic system (*see MA A.12.4, A.12.5, SS D.12.2; D.12.10; D.12.13*)
- describe the impact of agriculture on the economy

- describe interrelationships that exist between local businesses that process or distribute food and fiber items used in their daily lives
- describe limitations related to the global distribution of food and fiber
- analyze the way in which supply and demand influence what food and fiber are produced and distributed
- discuss how national policy affects agricultural business management and marketing at the local, regional, national, and international levels

F.12.2 Describe the process of marketing food, fiber, and natural resources (*see LA E.12.1, E.12.3*)
- create a marketing plan for the sale of a food, fiber, or natural resource item
- create an advertisement for an agricultural commodity
- describe the structure of agricultural businesses (e.g., sole proprietor, partnerships, corporations, and cooperatives)

F.12.3 Demonstrate basic business and management skills (*see MA A.12.1., A.12.5, B.12.5., F.12.4*)
- construct a profit/loss statement of an agricultural business
- construct a cash-flow statement for a business
- construct a net worth statement for a business
- analyze a budget
- use information to make a business decision

F.12.4 Research a career in agricultural business marketing and management (*see LA C.12.1, F.12.1; MA 12.1*)
- research requirements of jobs/careers associated with business management and marketing
- select an agricultural occupation that is most closely related to personal skills, interest, aptitudes, and abilities
- defend why a career choice in the food, fiber, and natural resource industry is or is not compatible with personal goals

By the end of grade 12 agricultural students will:

F.9-12.1 Engage in applied learning experiences emphasizing business and management principles

F.9-12.2 Continue developing business and management career interests within a work-based program related to agricultural career opportunities

F.9-12.3 Participate actively in community service

F.9-12.4 Develop advanced leadership skills through participation in FFA

**Note: The standards for agriculture education students in grades 6-12 have been identified in their broadest form in order to provide school districts the opportunity to tailor standards to meet local needs.*

Appendix

Draft versions of these agricultural education standards were sent to members of the following groups:

National Association of Agricultural Educators

National FFA Center

State Superintendent's Advisory Committee for Agricultural Education

The National Council for Agricultural Education

U.S. Department of Education-Agriculture and Rural Education

University of Wisconsin Extension System

Wisconsin Agribusiness Council

Wisconsin Assembly-Agriculture Committee

Wisconsin Association of Vocational Agricultural Instructors

Wisconsin Department of Agriculture Trade and Consumer Protection

Wisconsin Farm Bureau Federation

Wisconsin FFA Foundation Board

Wisconsin FFA Sponsors Board

Wisconsin Technical College System

Comments received from the above groups influenced our work. The task force sincerely thanks all others who sent in written response sheets for taking the time to read and comment on drafts of our work.